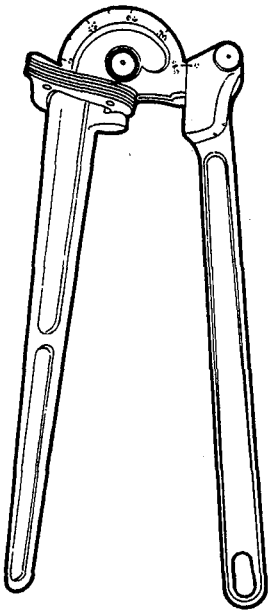


Chapter 40 BENDERS

HOW TO CHOOSE AND USE THEM

The "Types and Uses" section provides you with a list of some of the types of benders. These pages should help you select the right bender to do the job.



The "Using" section tells you how to use the bender to perform the desired function. The "Care" procedures tell you how to care for the items.

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TYPES AND USES

SPRING TUBE BENDERS

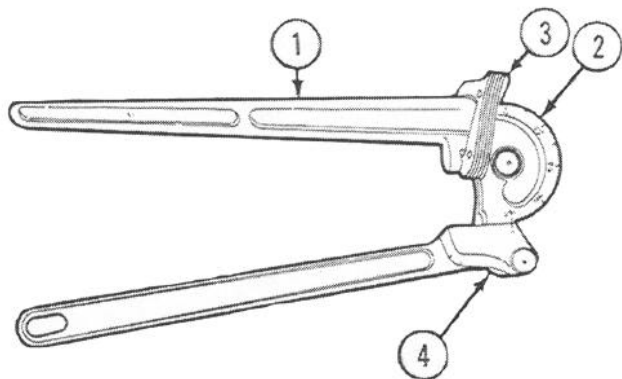


There are two types of spring tube benders, external and internal. The spring tube bender permits the bending of small diameter tubing by hand without collapsing the tubing.

External benders are used to bend straight sections of tubing which have at least one end which has not been flared. They are available in 1/4, 5/16, 3/8, 7/16, 1/2, and 5/8-inch diameters.

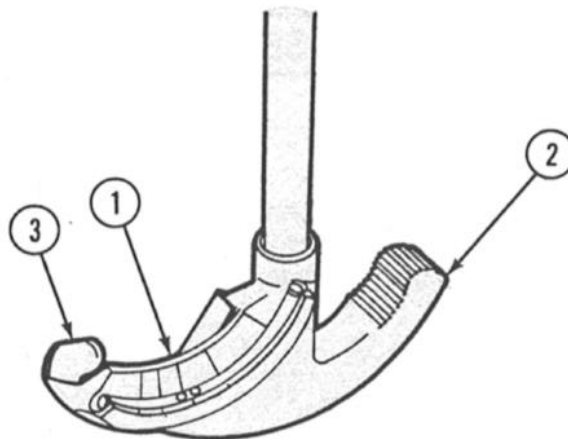
Internal benders are used for bending straight sections of tubing which have both ends flared. They are available in 3/8, 1/2, and 5/8-inch outside diameters.

HAND TUBE BENDER



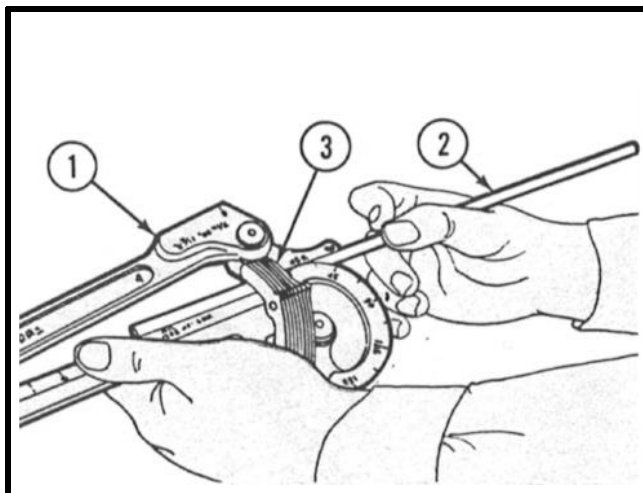
The hand tube bender consists of the following components: a handle (1) a radius block (mandrel) (2), a clip (3) and a slide bar (4). The radius block is graduated from 0 to 180 degrees, and the slide bar has a scribe mark which indicates the degree of bend. These benders are available in 3/16, 1/4, 5/16, 3/8, and 1/2-inch sizes. The hand tube bender is used to bend copper, brass, or aluminum tubing to specific angles.

ELECTRICAL CONDUIT HAND BENDER

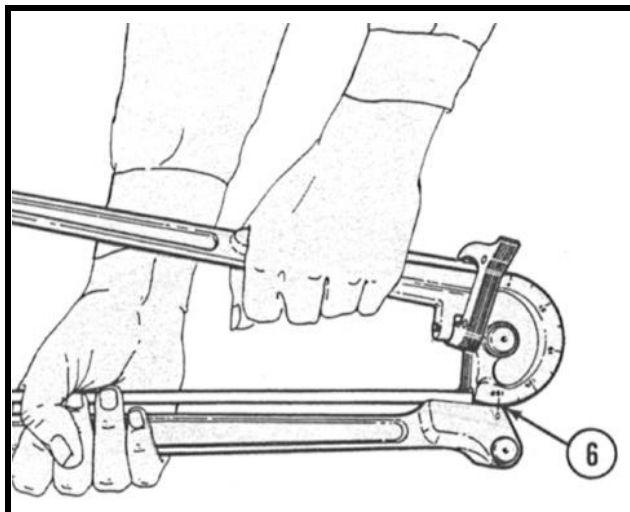


The electrical conduit hand bender has precise grooves to insure a smooth bend. It has a concave base (1), a foot rest (2) and a retaining hook (3) to keep conduit from slipping as it is being bent. The bender has a threaded opening for attaching a threaded piece of pipe to be used as a handle. Electrical conduit hand benders are available in 1/2, 3/4, 1, 1-1/4, 1-1/2, and 2 inches in diameter. They are used to bend thin wall and rigid conduit to allow for flat installation on inside building walls.

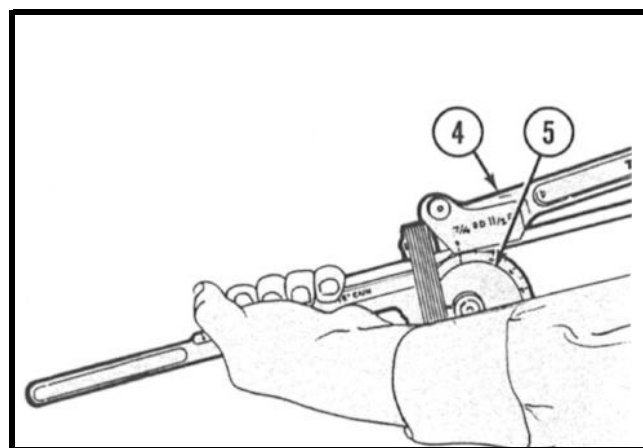
USING A TUBING BENDER



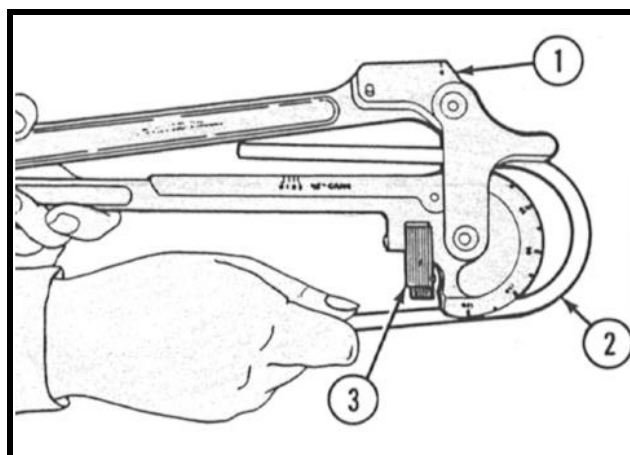
- 1 Raise slide bar (1) and insert tubing (2) to be bent.
- 2 Raise locking clip (3) and lock tubing in place.



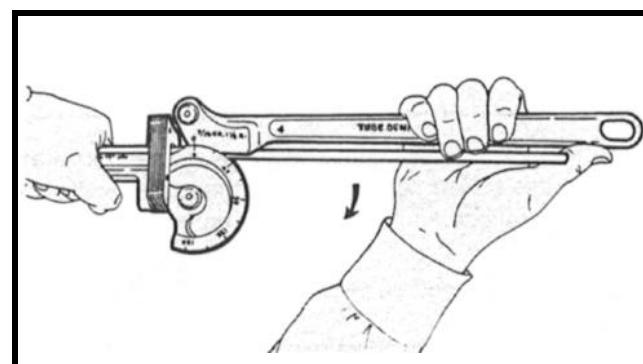
- 5 Stop bending the tubing when the zero mark on the slide bar matches the desired angle (6) on the block.



- 3 Lower slide bar. The zero mark (4) on the slide bar should match up with the zero mark on the block (5).

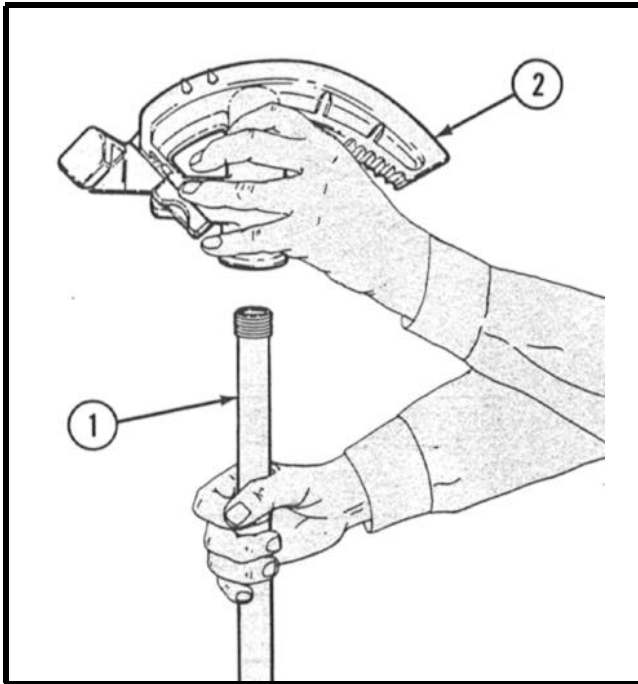


- 6 Raise the slide bar (1), lift up the locking clip (3) and remove the bent tube (2).

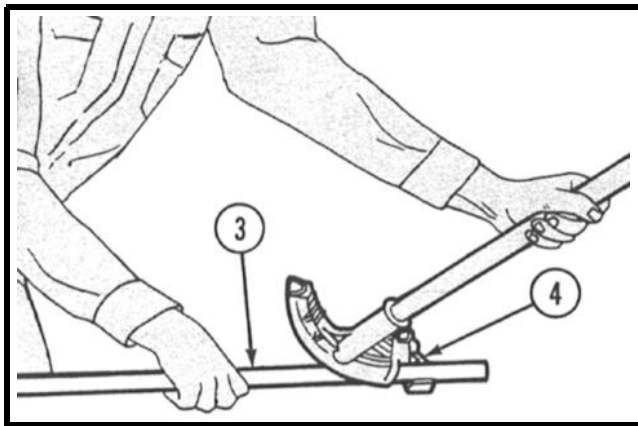


- 4 Apply downward pressure on the slide bar.

USING AN ELECTRICAL CONDUIT HAND BENDER



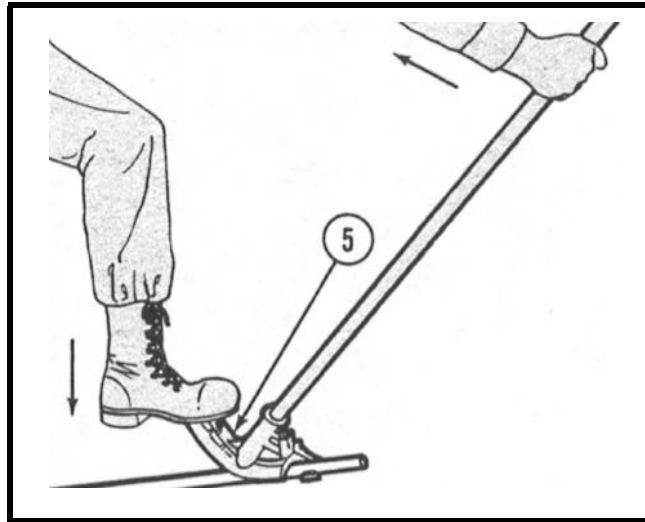
- 1 Install handle (1) on bender (2). A section of threaded pipe may be used as a handle.



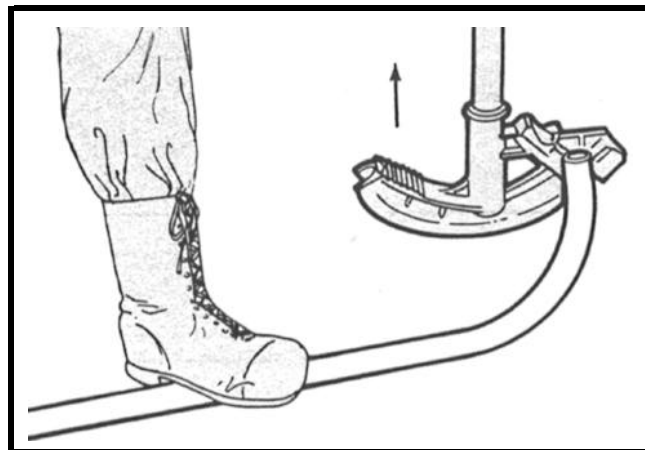
- 2 Tip the bender forward and slide the section of conduit (3) to be bent through the retaining hook (4).
- 3 Place mark where bend is to start opposite the arrow on the front end of the bender.

CAUTION

Do not jerk the handle, as this will create internal cracks and ridges inside the conduit which will cut the wires.



- 4 Place one foot on the foot rest (5) and push down with your foot while pulling back on the handle. Apply steady pressure throughout the entire bending process.



- 5 When desired bend has been obtained, release the pressure on the conduit by returning the handle to an upright position and slide the conduit out of the bender.

CARE OF BENDERS

1. Clean all grease and oil from gripping surfaces with a rag.
2. Apply a light coat of oil to non-gripping surfaces.
3. Store in a safe, dry place.